

What is claimed is:

1. A method of dynamically adapting a presentation generated by a scaleable application to a display screen of any of a plurality of heterogeneous device platforms, the method comprising:

5 a) providing a plurality of graphical user interface components in a hierachal configuration;

10 b) arranging the graphical user interface components on a page as a function of the hierarchy; and

15 c) selectively transforming the graphical user interface components to adjust the size of the page to maximize the fill of a display screen of one of the heterogeneous device platforms on which the scaleable application is operating.

2. The method of claim 1, wherein b) comprises identifying graphical

15 user interface components representative of the lowest hierarchical level and a highest layout priority within the hierarchical configuration.

20 3. The method of claim 1, wherein c) comprises reducing the size of the graphical user interface components as a function of transformation rules when the display screen is over-filled by the page.

25 4. The method of claim 1, wherein c) comprises selecting alternative graphical user interface components as a function of transformation rules when the display screen is over-filled by the page.

25 5. The method of claim 1, wherein c) comprises adding graphical user interface components to the page as a function of the hierarchical configuration when the display screen is under-filled by the page.

30 6. The method of claim 1, wherein c) comprises repeating a), b) and c) to generate another page with the remaining graphical user interface components when the page substantially fills the display screen.

7. The method of claim 1, wherein b) comprises applying a set of style guide parameters to each of the graphical user interface components to create uniformity in the visual appearance of the graphical user interface components.

5 8. The method of claim 1, wherein b) comprises arranging the graphical user interface components as a function of properties specified by the scaleable application.

9. The method of claim 1, wherein c) comprises:

10 generating a set of proposed device platform specific pages; and
selecting at least one device platform specific page from the set to display the graphical user interface components with the display screen.

15 10. The method of claim 9, wherein generating a set of proposed device platform specific pages comprises sizing each of the proposed device platform specific pages as a function of the graphical user interface components arranged to form each of the proposed device platform specific pages.

20 11. A method of dynamically adapting a presentation generated by a scaleable application to a display screen of any of a plurality of heterogeneous device platforms, the method comprising:

a) providing an intermediate representation comprising a plurality of container nodes in a hierarchical configuration;

b) identifying a first container node with the lowest hierachal level and the highest layout priority in the intermediate representation;

c) arranging on a page at least one graphical user interface component associated with the first container node;

d) applying a transformation rule to reduce the size of the at least one graphical user interface component when the page over fills a display screen of one of the heterogeneous device platforms; and

e) adding at least one graphical user interface component from a hierarchically related container node when the page under fills the display screen.

12. The method of claim 11, wherein d) comprises selecting an appropriate transformation rule as a function of at least one of the at least one graphical user interface component and capabilities of said one of the heterogeneous device platforms.

13. The method of claim 11, wherein the transformation rule is applied as a function of a ranking indicating the degree of general applicability of the transformation rule to said one of the heterogeneous device platforms.

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14. The method of claim 11, wherein applying the transformation rule comprises:

generating a list of possible graphical user interface components sorted by size;

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selecting a graphical user interface component from the list; and

interchanging the at least one graphical user interface component arrange on the page in c) with the graphical user interface component from the list.

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15. The method of claim 11, wherein d) comprises transforming a graphical user interface component to a graphical user interface component that is specific to said one of the heterogeneous device platforms.

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16. The method of claim 11, wherein d) comprises transforming a composite graphical user interface component comprising a plurality of graphical user interface components associated with a container node to a composite graphical user interface component specific to said one of the heterogeneous device platforms.

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17. The method of claim 11, wherein e) comprises selecting a container node that is one of a hierarchical sibling or a related higher level container node.

18. The method of claim 11, wherein e) comprises repeating d).

19. The method of claim 11, wherein b) comprises identifying a container node with at least one graphical user interface component as a hierarchical child.

20. The method of claim 11, wherein c) comprises laying out the graphical 5 user interface components on the page as a function of the hierarchical configuration and constraints specified within the application graphical user interface.

21. A system for dynamically adapting a presentation generated with a scalable application to a display screen of any of a plurality of heterogeneous device 10 platforms, the system comprising:

a target device platform comprising a display screen, the target device platform operable to initiate instantiation of a hierarchical configuration representing a plurality of graphical user interface components; and

15 a transformation module operable to selectively arrange the graphical user interface components on a page as a function of the hierarchical configuration,

the transformation module operable to selectively transform the graphical user interface components to maximize the fill of the display screen by the page.

20 22. The system of claim 21, wherein the hierarchical configuration is an intermediate representation comprising a plurality of container nodes and a plurality of component nodes, the component nodes representing the graphical user interface components.

25 23. The system of claim 21, wherein the transformation module is operable to selectively resize the graphical user interface components as a function of the target device platform.

30 24. The system of claim 21, wherein the transformation module is operable to selectively exchange graphical user interface components with alternative graphical user interface components as a function of the target device platform.

25. The system of claim 21, wherein the graphical user interface components comprise device platform independent graphical user interface components.

5 26. The system of claim 21, wherein the transformation module is operable to transform the graphical user interface components to graphical user interface components that are specific to the target device platform.

10 27. The system of claim 21, wherein the transformation module is operable to transform a composite graphical user interface component comprising a plurality of graphical user interface components to a composite graphical user interface component that is specific to the target device platform.

15 28. The system of claim 21, further comprising a set of style guide parameters, the transformation module operable to apply the set of style guide parameters to each of the graphical user interface components in the page, the set of style guide parameters operable to create uniformity in the visual appearance of the graphical user interface components.

20 29. The system of claim 21, wherein the target device platform comprises one of a pager, a wireless phone, a personal digital assistant, a hand-held personal computer, a vehicle navigation system and a notebook personal computer.

25 30. The system of claim 21, wherein the transformation module is operable to generate a set of possible device platform specific pages of various sizes and select therefrom.

31. The system of claim 21, wherein the target device platform comprises any one of a plurality of heterogeneous device platforms.